Welcoming Remarks - $PM_{2.5}$ and Electric Power Generation: Recent Findings and Implications

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Summary

The National Ambient Air Quality Standards (NAAQS) were revised by EPA in July 1997 to limit the mass concentrations of particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$). EPA and the States are now in the process of identifying specific areas of the U. S. that are and are not in compliance with the $PM_{2.5}$ NAAQS. Concurrently, a great deal of additional scientific information is still being collected with respect to the chemical composition of ambient $PM_{2.5}$, its relationship to emission sources, and its overall impact on human health.

The components of $PM_{2.5}$ that have traditionally been linked to power plant emissions — primarily sulfates, nitrates, and some metal-bearing particles — have not been conclusively linked to adverse human health effects. However, recent studies have shown that such components often constitute a significant portion of ambient $PM_{2.5}$mass. Therefore, as State Implementation Plans (SIPs) for compliance with the mass-based $PM_{2.5}$ NAAQS are developed over the 2005-2010 time frame, electric generating facilities, especially coal-fired power plants, may face SO_2 or NOx emission restrictions that go beyond the current requirements for new sources, acid rain abatement, or (in the case of NOx) attainment of the NAAQS for ozone.

Over the same approximate time frame, emissions from power plants are also likely to be affected by SIPs under EPA's 1999 Regional Haze Rule because: (1) EPA has identified $PM_{2.5}$ and its precursor emissions from power plants as a primary cause of long-range visibility degradation; and (2) the Regional Haze Rule specifically requires the use of Best Available Retrofit Technology (BART) as part of the SIP development process. Another visibility-related issue facing power plants is near-stack opacity. Excessive amounts of sulfur trioxide (SO_3) in flue gases and/or under-performing particulate control equipment may cause individual facilities to be out of compliance with Federal, State, or local regulations governing stack opacity. The regulatory picture is also complicated by the fact that emissions of SO_2 and NOx from power plants are likely to be targeted for further reduction as part of a nationwide multi-pollutant control strategy that may be mandated by Congress and implemented by EPA.

This conference, through a combination of keynote addresses, oral presentations, poster presentations, and opportunities for one-on-one discussion, is designed to provide attendees with up-to-date technical information with respect to $PM_{2.5}$ and related air quality issues. Special emphasis will be placed on how this information may affect electric power generation in the future, via implementation of multiple, sometimes overlapping air quality regulatory programs.